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R. natans. The paper was illustrated by blackboard drawings and by specimens preserved in alcohol.

The second paper was then read by Dr. N. L. Britton and was entitled, "Notes on some Interesting Plants of the Adirondack Mountains," illustrated by copious specimens. The president remarked upon the evidence presented by this paper of the great importance of carefully exploring well-known localities. Every such exploration, of which an account has been presented to the Club, had resulted in bringing to light new facts of importance. Dr. Britton then read a short paper "On *Rusbya*, a new Genus of Vacciniaceæ from Bolivia." The paper was illustrated by specimens of two species, as well as by a number of other interesting members of this family from the same region. Special interest centered in the question as to whether these plants were really parasitical or not. Dr. Rusby was called upon for some remarks, and expressed the opinion that they were, at most, only partially parasitic. As he had observed these plants growing in the Bolivian Andes, it seemed to him that the group presented indications of being but the remains of a very large group which had formerly existed. Species in the several genera were in a number of cases solitary or few, and other cases showed broad gaps. He had a number of new species and probably a new genus waiting to be described.

WEDNESDAY, DECEMBER 28, 1892.

The president in the chair and nineteen persons present.

Dr. Britton exhibited a large work in two volumes on "Seedlings" by Sir John Lubbock, and remarked upon the importance of the subject and the value of the book.

Miss May Bristol was elected an active member.

The announcement paper of the evening, on "Hostile Bacteria," was then read by Prof. H. W. Conn, of Wesleyan University.

Recent Literature Relating to American Botany.

Additions to the Cretaceous Flora of Staten Island. Arthur Hollick. (Proc. Nat. Sci. Assoc. Staten Island, November, 1892.)

Additions to the Flora of the Cape Region of Baja California. T. S. Brandegee. (Proc. Calif. Acad. Sci. (II.) iii. 218, reprint.

Four species are described as new: *Dalca trochilina*, *Acacia Californica*, *Albizzia accidentalis* and *Dianthera incerta*.

A Double Morning Glory. (Gard. and For. v. 592.) With illustration of double flowers of *Ipomœa purpurea*.

Araceen Brasilicus—Die Nutzbaren und Officinellen—Theodor Peckholt. (Pharm. Rundsch. x. 279.)

Aster and Solidago—Development of the Flower and Embryo-Sac in. G. W. Martin. (Bot. Gaz. xvii. 406; with plates.)

Aster and Solidago—Development of the Floral Organs in. George Martin. (Am. Nat. xxvi. 1032.)

Botanical Notes from Texas. E. N. Plank. (Gard. and For. v. 579.)

Celastrus scandens. (Gard. and For. v. 568.) With plate.

Cross Fertilization—Insects attracted by fragrance or brilliancy of flowers for purposes of. Richard E. Kunze. (Canad. Entom. 1892; reprint.)

Diatomology. K. M. Cunningham. (Am. Micros. Journ. xiii. 249.)

Diatoms of the Connecticut Shore. W. A. Terry. (Am. Micros. Journ. xiii. 253.)

Die "Springenden Bohnen" aus Mexico—Dritter Beitrag. Franz Buchenau. (Abh. Natur. Ver. Bremen, xii. 577–290.)

Herr Buchenau reviews the whole subject of Mexican "Jumping Beans," holding that *Sebastiana Palmeri*, Rose, the seeds of which contain the larva of *Carpocapsa saltitans* is the same as *S. Pavoniana* Müll. Arg., and that similar seeds are produced by *Colliguaja Brasiliensis* in the Argentine Republic, the "jumping" of these being caused by the larva of another moth, the *Grapholitha motrix*.

Dionœa muscipula, Ellis—*Contributions to the History of*. J. M. MacFarlane ('Contr. Bot. Lab. Univ. Penn. i. 7. illustrated.)

Dr. MacFarlane gives in summary the results of a number of years' experiments upon the plants irrita-contractility. The closure of the leaf is discussed as dependent upon stimuli of mechanical, thermal, luminous, chemical and electrical nature. Experiments show that mechanical stimuli are especially interest-

ing, and demonstrate the peculiar sensitivity of the leaf to a series of irritations, rather than, as generally stated, to the first impulse. A record is given of the plants memory of impulses, and of its memory-duration under varying temperature. A second series of experiments show that closure is not altogether dependent upon irritation of the sensitive hairs, the outer as well as the inner surface of the leaf proving sensitive, but in a less degree. Structurally, the author has especially considered the irritable hairs, and the questions of inter-cellular passages, and of inter-cellular protoplasmic connections. The origin of the contractile impulse is centralized in the joint of the irritable hairs; here a first mechanical impulse coralizes the protoplasmic elements and arranges minute permeable areas in the contained sap,—a second stimulus beginning the process of squeezing out liquid into the permeable areas, and perhaps as well through the hair-joint cells. The discovery of transverse striæ in the cell protoplasm suggests interesting structural relations with striped muscle. The author emphasizes, especially, the important functions of inter-cellular protoplasmic connection and the minor importance of cellulose extensibility. “* * The cellulose membranes are merely secondary strengthening sacs, that act much like the netting bags that surround rubber bellows. * * That contractility, alike in the animal and vegetable kingdoms is accomplished by migration of liquids through the protoplasmic substance, and that this is wholly determined by the molecular condition of the protoplasm, irrespective of cell walls.” The utilization of starch during the process of contraction and secretion is also considered. Experiments in regard to secretion demonstrate that any protoplasmic irritation (including electrical) will cause the outpouring of the digestive juices, a process that becomes as apparently continuous as if a nitrogenous body had been the cause of its excitation. The paper closes with some suggestive notes as to the evolution of the mechanism of *Dionaea*.

BASHFORD DEAN.

Dionaea—An Abnormal Development of the Inflorescence of. John W. Harshberger (Contr. Bot. Lab. Univ. Penn. i. 46, illustrated).

Distribution of the Flora of the Cape Region of Baja California. T. S. Brandegees (Zoe, iii. 223–231).

Epilobium—*A New*. T. S. Brandegee (Zoe, iii. 242, 243, with plate).
Description and figure of *E. niveum* from Snow Mountain,
Lake Co., Cal.

Ferns—*Synoptical List*—xiii. G. S. Jewman (Bull. Bot. Depart.
Jamaica, Oct., 1892). Notes on *Hypolepis Purdiana*, *H. repens*,
H. nigrescens, *Notholaena trichomanoides*, and *N. ferruginea*.

Flora Washingtoniensis. Wilhelm W. Suksdorf (White Salmon,
Washington, 1892). A catalogue of the Phænogamia and
Pteridophyta of Washington.

Grass of Parnassus (Am. Gard. xiii. 696). Illustration of *Parnassia*
palustris.

Leersia—*The Genus*. Theo. Holm (Bot. Gaz. xvii. 358, reprint,
illustrated).

List of Plants collected by C. S. Sheldon and M. A. Carleton in Indian
Territory in 1891. J. M. Holzinger (Contr. U. S. Nat. Herb.
i. 189). Two new species, *Ipomæa Carletoni* and *Euphorbia*
strictior, are described and illustrated.

Nomenclature of Plants. Katharine Brandegee (Zoe, iii. 258–261).

Notes on Collections of Cryptogams from the higher mountains of
New England. William G. Farlow (Proc. Bost. Soc. Nat. Hist.
xxv. 387).

Notes on the Geology of Skunnemunk Mountain, Orange County, New
York. Chas. S. Prosser (Trans. N. Y., Acad. Sci. xi. 132–149).

By far the larger part of this paper is occupied by accounts of
the fossil plants found in the rocks of this locality, by means of
which the age has been provisionally determined as Middle
Devonian. *Psilophyton princeps*, Daw., was particularly abundant.

Observations on the Plants of Oklahoma Territory and Adjacent Dis-
tricts. M. A. Carleton (Contr. U. S. Nat. Herb. i. 220).

Oenothera—*Notes on Some Species of the Genus*. Alice Eastwood
(Zoe, iii. 248–252).

On the Myxobacteriaccæ a New Order of Schizomycetes.—Roland
Thaxter. (Bot. Gaz. xvii. 389, illustrated).

Two new species of *Chondromyces* are described and illustrated.
The genus *Myxobacter* is established with one species *M. aureus*

The genus *Myxococcus* is also established with three species, *M. rubescens*, *M. virescens*, and *M. coralloides*.

Paleontologie Vegetale. (*Ouvrages publiés en 1890.*)—R. Zeiller. (Extrait de l'Annuaire Geologique Universel, vii. 1115–1157).

This is a summary, with comments, upon most of the important publications concerning fossil botany which appeared during the year 1890. America is well represented by the works of Ward, Dawson, Matthew, Fontaine, Knowlton, Holm and others, most of which were here noted at the time of publication.

Pavonia Wrightii. (Meehan's Month. ii. 178).

Pflanzenpathologische Mittheilungen aus Ecuador. G. de Lagerheim. (Zeitsch. Pflanzen. Krank., ii. 195).

Prunus tomentosa. J. G. Jack (Gard. and For. v. 580, with illustration).

Rumfordia from Lower California—A new. T. S. Brandege (Zoe, iii. 241, 242, with plate).

Description and figure of *Rumfordia connata*.

Sullivantia Hapemani. J. M. Coulter (Bot. Gaz. xvii, 420).

Tabebuia Donnell-Smithii. J. N. Rose (Bot. Gaz. xvii. 418).

A new species from Mexico and Central America, with one of C. E. Faxon's beautiful plates.

Taxodium mucronatum (Gard. Chron. xii. 646).

With illustration of the famous old Mexican Deciduous Cypress at Sta. Maria del Tulé.

The Occasional Cross. Th. Meehan (Bot. Gaz. xvii. 420).

Trees in Winter. E. P. Powell (Am. Gard. xiii. 706, illustrated).

Two Pretty Pentstemons. F. A. Waugh (Am. Gard. xiii. 724).

Illustrations of *Pentstemon cristatus* and *P. confertus*.

Vegetable Pathology. Report of the Chief of the Division of. (U. S. Depart. Agric., 1892). With illustrations of *Ceratocystis fimbriata*.

Vine Cactus in Mexico—The. (Am. Gard. xiii. 759). Illustration of *Fouquieria splendens*.

Washingtonia filifera. (Gardn. Chron. xii. 590, 677, illustrated).

Weeping Spruce—*The*. Thomas H. Douglas (Gard. and For. v. 591).

With illustration of *Picea Breweriana*.

Wistaria Sinensis—*The. Anatomy of the Stem of*. Carlton C. Curtiss (Journ. N. Y. Micros. Soc. viii. 79–89; three plates. Reprinted as Contrib. Herb. Col. Coll. No. 28).

Mr. Curtiss describes at length the anatomy of the stem of this vine, with especial reference to the secondary layers of bast which are formed in the growth of old stems at intervals of several years and become covered by the succeeding layers of wood. The material which called especial attention to these studies was received some time ago from Mr. B. Heritage, of Mickleton, N. J.

Reviews of Foreign Literature.

Fossil Plants as Tests of Climate. A. C. Seward. (Pamph. 8vo., pp. 151; Cambridge Univ. Press, London, 1892. New York, Macmillan & Co.) This is the Sedgwick prize essay for the year 1892, and in it the author has endeavored "to consider plants as the thermometers of the past," in which effort he has succeeded in bringing together practically all important references by botanical and geological writers on the subject. Plants in spite of their meagre palæontological remains, as compared with animals, have always been considered as the more trustworthy indices of climatal changes, as they are unable to migrate with the same ease as animals in the event of a change in temperature. They must either perish entirely or else gradually adapt themselves to the changed environment.

An introduction and historical sketch precedes the subject matter proper, after which follow chapters on plant distribution, Arctic vegetation, influence of external conditions upon the macroscopic and microscopic structures of plants, annual rings in recent and fossil plants, Arctic fossil plants, Carboniferous Period, Pleistocene plants and concluding remarks.

The principal question to be solved has always been whether the evidence warranted the assumption of a uniform climate throughout the world in past geological ages or whether there were temperature zones as we recognize them to-day. The general broad view of the subject undoubtedly indicates a uniform tem-